

NEXUS

Printer Sharer Software

Version 1.00
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Installing Nexus Printing

The Nexus printing software is supplied as an Archimedes floppy disc and a manual. For ease of installation, an application called *!Install* is provided on this disc to copy all the printing software onto your Nexus disc. **Do not copy software directly from the release disc as this will not work.**

The installation process requires Nexus server version 0.60 or greater running on the Nexus Disc sharer. On the Archimedes doing the installation NexusFS 1.00 or greater and the desktop to be running. If these are not the current versions of software please read the note on the *!Boot* application and the *!PartEdit* application to see how to rectify this.

To start the installation double-click on the application *!Install*.

Installing Printer Software

LaserDirect printer mechanism

☐ None fitted ☒ Qume

☐ Canon LBP8 ☐ Canon LBP4

Where to put !sharer

nexus::4.Nexus

Where to put the network Printer driver

nexus::4.!Apps_.PDrivers

Where to put the print queue directory

nexus::5

Where to put the banners

nexus::4.Nexus

Install Cancel

Select the appropriate LaserDirect printer mechanism by clicking on the radio button.

The network printer driver is the version of LaserDirect software to be run to print through the network. This is different from the version which is used to print from the station with the interface card.

If any of the pathnames are different from the current settings, click with the mouse to change them.

Click on *!Install* to copy the software onto Nexus. If a directory specified in the pathname does not exist the program will give an error message so that you may create it in the usual way.

Automatically starting !Sharer

Provided on the printer sharer release disc is a utility called *lineNumber*, this should be copied to the Library directory. Running this sets the system variable *Nexus\$LineNumber* to the line that the Archimedes is attached to on the Nexus Disc Server. By added this to the startup sequence in the file *DeskStart* inside the directory *!Boot* a specific Archimedes can be made to start the *!Sharer* application.

The following lines should be added at the end of the *DeskStart* file, this can be edited using *!Edit*:-

LineNumber

If <Nexus\$LineNumber> = 1 Then Run <Boot\$Disc>.Nexus.!Sharer

Nexus Printing - User Manual

Introduction

The NexusPrint printer sharer software is designed to run on Archimedes computers attached to an SJ Research Nexus Disc Server unit, enabling them to share printing facilities. This allows up to eleven connected Archimedes to have simultaneous, cost-effective, access to any of the printers connected to the printer server station. Output may be sent either directly or queued for later printing.

How does it work?

To use the Nexus printing facilities, each machine must have installed, in addition to the Nexus filing system, the NexusPrint relocatable module. When printing to the NexusPrint system, data to be printed is sent via the Nexus disc unit to the station running the *printer sharer* software.

A user selects how and where his output will appear by choosing an appropriate *logical* printer. The despooler translates this into a *physical* printer (a printer connected to the parallel, serial port etc.) then sends the print job sandwiched between *banner* text and *endtext*.

Banners file are split into two parts: first, the header text which precedes the print job and second, the end text which follows the print job. A banner file may contain printer control codes to select a particular feature of that printer. For example, NLQ (near letter quality) could be selected at the start of output destined for a dot matrix printer (the end text could send the code to set the printer back into draft mode). The other purpose of a banner file is to output information about the print job, e.g. the time and date.

Note that several logical printers may refer to the same physical printer, differing only in the banner texts that they specify. To determine which logical printers are available see page 2 of this manual.

What is required?

To run the NexusPrint software, the following relocatable modules must be installed in your Archimedes:-

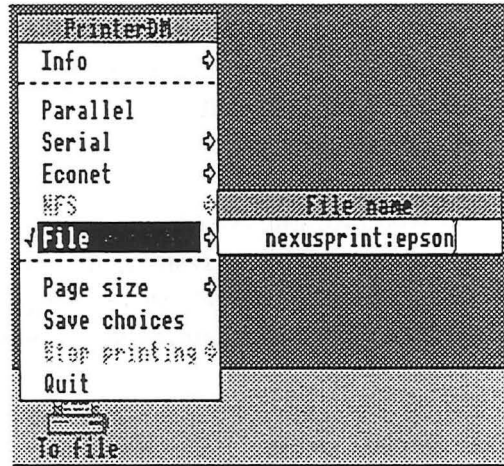
NexusPrint Version 0.48 or later
NexusFS Version 0.92/21 or later

To determine if you have the correct version of Nexus software installed, use the command `"*Help Nexus."`

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Printer Drivers

Printing through Nexus will usually be done via the standard printer drivers. These are usually to be found in the directory PDrivers, which is inside the directory !Apps on the shared Nexus partition. They are normally !PrinterDM, !PrinterPS and so on. Your system manager will tell you if they are located elsewhere.



To load a printer driver from the desktop, double click on it as with any other application. It will then appear on the left of the icon bar. To direct the printer driver output to NexusPrint, select *To file* from its menu and enter the "filename" *NexusPrint:<banner>*, where *<banner>* is the logical printer that you wish to use. Your system manager may have arranged that the printer driver is automatically set up for you in this way.

For example, the user above wishing to print on the Epson would load !PrinterDM, and direct its output to the "file" *NexusPrint:epson*. Any output then sent via PrinterDM would then be routed through NexusPrint to the logical printer "epson".

Banners

As already discussed, different printers are selected under NexusPrint by specifying different banner names in the printer driver. If the printer sharer Archimedes has two logical printers *serial* and *parall* corresponding to physical printers attached to the serial and parallel port respectively of the printer sharer Archimedes, they can be accessed as *nexusprint:serial* and *nexusprint:parall*.

All the banners available from any station can be determined with the command

```
*.nexusprint:
```

This will list all the logical printers, one printer per line. It gives the physical printer they use, whether the printer sharer will spool print requests or attempt to print them directly, and whether the logical printer is busy or unavailable. For example:

```
Nexus Printer Sharer 0 line 3
```

serial	Serial	spooling
faster	Serial	mixed
epson	Parallel	direct

This means that the banner *serial* will send its output to the printer sharer's serial port, but it will spool the output to a file before printing it; that the

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Spooling, Mixed and Direct

banner *faster* will also output to the serial port, but will attempt to print the file immediately if the printer is not busy and spool it otherwise; and that the banner *epson* will send data to the parallel port immediately it is received or report an error if the printer is already in use.

Spooling is a method of avoiding lengthy delays when attempting to print a file, caused by the printer being either very slow, or being busy printing someone else's output when the user makes his request. What happens is that the printer sharer software in the server Archimedes does not attempt to send the file directly on to the printer, but instead assembles it in a file in a *Print Queue* directory. As well as storing files in the Print Queue, the despooler software also scans the Print Queue and attempts to send each "job" that it finds to the relevant printer, provided that printer is not already handling some other print job. Thus each print job will eventually be printed out, but the user is not forced to sit and wait in the meantime and can get on with other tasks.

Jobs are printed out by the printer sharer on a "first come, first served" basis for each printer separately. If two jobs are sent one after the other to be spooled for the same physical printer, the first one sent will be the first one printed (assuming they have both finished spooling). Note that *direct* or *mixed* print jobs may find the printer not busy between spooled jobs and therefore be printed out first; if they do not, then a direct job will report its failure while a mixed job will go to the back of the Print Queue.

Printing from the command line

For most purposes a printer driver is recommended for sending text to a printer, as any supplementary control codes can be sent to produce effects as typefacing, graphics etc. For listing programs to a line printer a printer driver may not be required. In this case selecting the logical printer can be done by two commands

*FX 5,8	Sends output to Nexus
*NexusPS <banner>	Selects a banner name

As usual output can be controlled by sending character 2 and 3 (control B to start printing, control C to stop printing). The current setting of NexusPS can be found by typing *NexusPS without a banner name.

Alternatively the system variable PrinterType\$8 can be changed by using the command *SET PrinterType\$8 <setting>. This has all the flexibility of the *To File:* setting available when using a printer driver. i.e. it can be set to either of the following:-

```
nexusprint:<banner>
nexusprint#<card number>:<banner>
```

The <banner> in a *NexusPS command will only be used if no banner name is supplied in the setting of PrinterType\$. If the PrinterType\$8 is set to anything other than *nexusprint:* or *nexusprint#<card number>:* this will override the effect of a NexusPS command.

System Manager's Manual

Introduction

This section describes setting up the Nexus printing software and the printer sharer software. To understand the way that users print through Nexus it is important to read the previous chapter of this manual.

One Archimedes must run the printer sharer software *!Sharer* to actually send the data to the printers. This printer sharer software can be described as having three sections; one handles directly sending data from the clients to the printers, one handles spooling data from the clients into the print queue, and one handles despooling the print queue out to the printers.

How does the printer sharer work?

The spooling part of the program is in many ways the heart of the system. At intervals, it polls a reserved area of the Nexus server's disc (called the *print buffer*) looking for messages sent from a machine trying to print and responding to them appropriately. If it detects a message it switches to scanning the disc at a faster rate; if direct printing is requested it passes the message, otherwise it copies incoming data into a file in the Print Queue. See below for a more detailed description of the structure and management of the print queue.

The despooling part of the program scans the print queue at regular intervals, and for each print job waiting looks to see if the appropriate printer is not tied up printing another job. If the printer is free it sends the logical printer's banner text followed by the data from the print job to the printer, finishing with the end text, and then deletes the job when printing is completed.

The direct printing section of the program takes the data being sent by the client, wraps it up in a suitable banner, and sends it straight to the printer.

Installing the printer sharer software

Before the Nexus print software can be used an area of the disc must be allocated for the print buffer; this is done by enabling the printer sharer option in the *!PartEdit* partition configuration window. In addition each of the stations trying to print must have the following relocatable modules installed:-

NexusPrint 0.48 or greater (not required in the station running *!Sharer*)
NexusFS 0.92/21 or greater

To discover which modules are installed in the machine type

**modules*

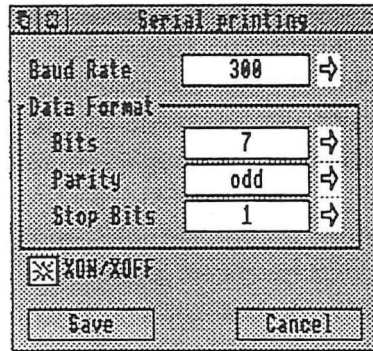
If machines are booting from a Nexus with the standard software setup these will automatically be installed at startup by being *RMloaded* within the files *PreDeskTop* and *DeskStart* inside the *!Boot* directory (see the Nexus Disc Server Manual for more details).

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Setting up printers

How to connect a parallel and serial printer is described in Appendix L of the Archimedes User Guide.

If a serial printer is to be used with the printer sharer software then the baud rate and data format must be set. This can be done by clicking the menu button over the *!Sharer* icon and choosing *serial...* from the *setup* menu.



It is advisable to disable printing whilst changing any details as they have an immediate effect on serial printing. The dialogue box shows the current settings. To alter any settings, click the mouse button over the arrow to see a list of the options (the current setting is ticked) then click the select button over the new setting.

Selecting Save will write the details to a configuration file inside the application, so that they are automatically used when *!Sharer* is next started.

Setting the Print Queue and banners directories

The printer sharer software uses two directories when running; a print queue directory where spooled print jobs are queued prior to being printed out, and a banners directory in which the subdirectories defining each "banner" or logical printer are kept.

These directories should be created before running the printer sharer software for the first time. The software as released has the following default settings

Print Queue directory	nexus::5.\$\$.PrintQ
Banners directory	nexus::5.\$\$.Banners

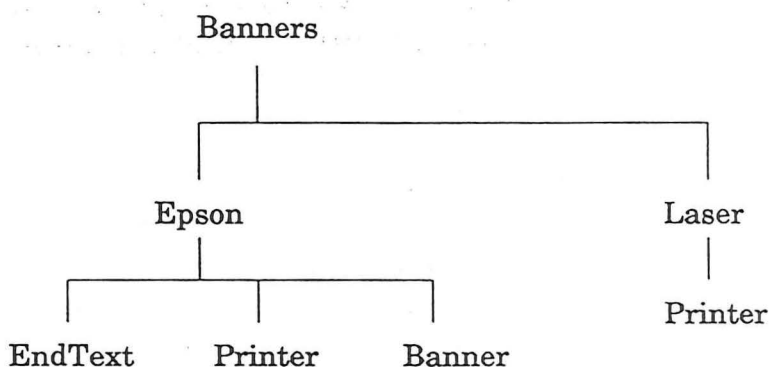
The print queue directory must be writable, i.e. not on the shared partition of the Nexus unit. The banners directory may be kept anywhere, although it may be useful to put this on the shared partition so that users may examine the banner files in detail before starting to print.

If either of these directories are not found the printer sharer software will issue warnings and will need to be reconfigured, saved and restarted. The only exception is when none of the printers specified in the banners directory are able to spool their information. In this case the print queue directory is not need, and will not be checked for.

Banners

As mentioned in the User Manual section, printers are referred to by the NexusPrint drivers as logical printers, which specify which banner files and which physical printer to use. These logical printers are sometimes referred to as "banners", since the name of the banner they use completely defines the logical printer.

Each banner is represented on the server machine by a directory in the banners directory, and when the printer sharer is started up it searches the banners directory for such subdirectories. These subdirectories are given the name of their banner, for example "epson" or "laser". Each banner may contain three files; printer, banner and endtext; the files banner and endtext are not compulsory, and are not supported with the LaserDirect. The files can be created and edited using the application *!Edit*.



The "printer" file defines the physical printer and printing type. **They must be defined in that order.** The physical printer may be one of the following; note that the case of the text is not important.

- <LASERDIRECT> The Computer Concepts Laser Direct printer.
This printer must have printing type <SPOOL>.
- <PARALLEL> The printer attached to the printer sharer's parallel port.
- <SERIAL> The printer attached to the printer sharer's serial port.
- <HOLD> The job is spooled but not printed until it is rerouted.
This printer must have printing type <SPOOL>.
- <NULL> The null printer, i.e. nowhere.

If, when the printer sharer is being started up, a banner is discovered with a printer defined which is not one of the above, the printer sharer will discard the banner and give the error message `Bad device name for banner <bannename>` where `bannename` is the name of the incorrectly defined banner.

The printing type may be one of the following; case is also not important.

- <SPOOL> Files will be queued for printing in the order the printer sharer receives them.
- <DIRECT> Files will be sent straight to the printer if it is not busy, otherwise error.
- <MIXED> Files will be printed directly if possible, otherwise queued for printing later.

If the type specified is none of the above, the banner will be discarded when the printer sharer is started up and the error message "Bad spooling type for banner <bannername>" will be given.

Thus the for an Epson printer, the banner "Epson" might be created, and the file Epson.printer in the banners directory might be set up to contain;

<SERIAL><SPOOL>

The remaining files in the banner directory contain the banner texts to print at the start and end of printout. These consist of mixed text, control characters and keywords. Control characters are the normal Archimedes "bar codes", i.e. !A for Ctrl-A (character code 01), and so on; !? is used for DEL (character 127), and !! is used to set the top bit on the following character.

The characters |, < and > are represented by ||, |< and |>, because < and > are used to delimit keywords in the banner text. These keywords are generally substituted with useful information such as the time or date; a full list is given below.

Keyword	Meaning
<NOW>	Selects time of processing banner file for the time and date keywords below
<START>	Selects time that the user initiated printing
<END>	Selects time that the user finished sending characters to be printed
<HOURS>	Replaced to hold the hours (two digit 24 hour clock, leading zero printed).
<H>	A synonym for <HOURS>
<12HOURS>	Replaced to hold the hours (two digit 12 hour clock, leading zero replaced with a space).
<AM>	Replaced with either a.m. or p.m. as appropriate. Note that noon is deemed to be p.m.
<MINUTES>	Replaced to hold the minutes (two digits, leading zero printed).
<M>	A synonym for <MINUTES>
<SECONDS>	Replaced to hold the seconds (two digits, leading zero printed).
<S>	A synonym for <SECONDS>
<DATE>	Replaced to hold the date (two digits, leading zero replaced

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	with a space).
<ST>	Replaced to hold the correct suffix for the day of the month.
<MONTH>	Replaced to hold the month as two digits with the leading zero printed.
<MONTHNAME>	Replaced to hold the full name of the month, e.g. January.
<MTH>	Replaced to hold the three letter abbreviation of the month name, e.g. Jan.
<YEAR>	Replaced to hold the year (i.e. 91 for 1991).
<FULLYEAR>	Replaced to hold all four digits of the year, e.g. 1991.
<USERNAME>	Included for compatibility with MDfS banner files; replaced with nothing.
<STATION>	Replaced to hold the client's port number (1-12).
<MARK>	Gives a reference point for <TAB>.
<TAB nnn>	Pads out to nnn spaces after the last <MARK>. There must be only one space between the word TAB and the number. If no <MARK> has been given, this pads out to nnn spaces from the beginning of the text. If the number after TAB is less than the current character position, then the tab will move to the position 256+nnn.

Starting the Printing software

To run the despooler simply double-click on the !Sharer application icon. The printer sharer icon will then appear on the left hand side of the icon bar. If the configured banners directory cannot be found, the printer sharer will give a warning and will not operate until the startup options have been configured correctly (see Setup) and then restarted. If all banners are using direct printing then the software will not check for a Print Queue directory, otherwise there will be a warning and again this must be configured.

Controlling the Despooler

Clicking on the printer sharer icon with the Select button causes the "Nexus Printer Sharer Log" window to appear, which displays a log of the activity of the printer sharer as it is running. It is possible to configure which operations appear in the log (see Setup). The bottom line of the log window is used to display the current state of the LaserDirect.

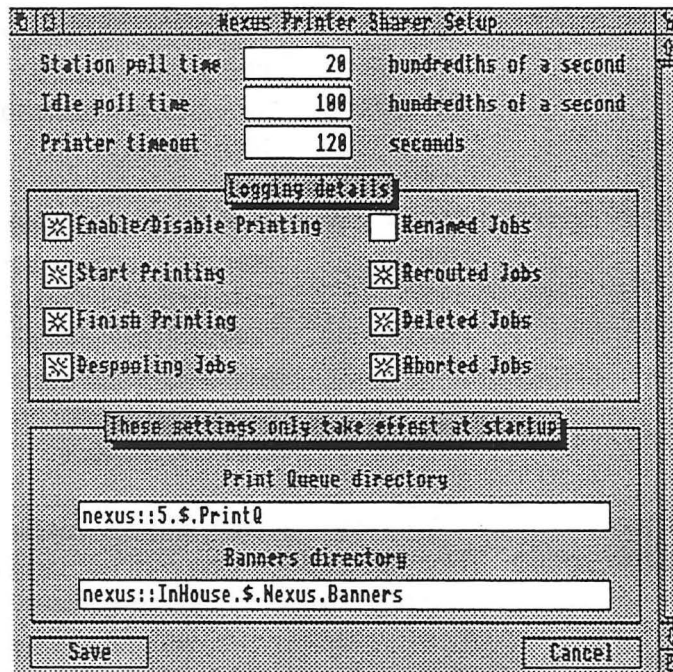
Clicking on the printer sharer icon with the Menu button brings up the "Printer Sharer" menu which contains the following items:

Info

Standard program identification and version window. Please quote the version number in any correspondence, about this software, with SJ Research.

Setup

This menu contains two options: setting up the serial printer (described above in the section called Setting up Printers) and configuring the printer sharer. The printer sharer options are grouped in three sections: the printer sharer timing options, the logging window options, and the startup options.



The "Station Poll Time" determines the time interval between successive occasions of the printer sharer scanning the data sent by the client stations when it is aware that a station is printing. This is generally set quite short so that clients do not have a long wait before the print is "finished" from their point of view. The default value on startup is 20 hundredths of a second, meaning that the disc is scanned every fifth of a second. This can be checked by watching the Nexus unit disc light when the printer sharer is busy.

The "Idle Poll Time" determines the time interval between successive occasions of the printer sharer scanning the data sent by the client stations when no printing is going on. This is balanced between being set high enough that the printer sharer Archimedes is not much affected by the presence of the printer sharer when idle, and being set low enough that there is not much delay for a client starting to print. The default value on startup is 1 second, which can be checked by watching the Nexus unit disc light flash once a second when the printer sharer is idle.

The "Printer Timeout" determines the length of time that the printer sharer will wait for a printer to respond when a station is printing directly, before assuming that it has failed in some way and aborting the print job. This is normally set high, defaulting to 120 seconds (2 minutes), since for example PostScript printers can take some considerable time to process data.

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Printer Control

Printers Active

Examine Print Queue...

The logging details section consists of a set of option boxes which enable or disable the relevant message in the logging window.

The startup options determine where the printer server locates the print queue and banners directories. When these fields have been modified, the printer sharer will need to be restarted for the changes to take effect.

Enables the System Manager to selectively control which banners and printers may be used. A tick at the left of the banner or printer enables it, if there is no tick (or the banner is greyed out) it is disabled. Once a job has begun printing, deselecting it, using this menu option will not affect it. However new jobs will not be allowed to start. This enables System Managers to shutdown the printer sharer software without stopping jobs half-way through; perhaps as a preliminary to deactivating the printers.

Toggles the current printing state of the printer sharer. When this item is ticked printing of jobs will take place (which is the default state of the software on starting). As the printer sharer claims the use of all available printers, the machine it is running on is unable to use the attached printers for local printing (and cannot print through the Nexus printer either). However it is not necessary to quit the printer sharer in order to print locally, but the printers active item will need to be turned off. Users who are printing direct to a printer will be halted, and any jobs being despoiled to the printer will be stopped (these will be sent again, from the beginning, once the printers are activated again). The spooling facilities remain active so client stations will still be able to send print jobs to the printer sharer, ready for printing when the printers become available again.







When the printer sharer is deactivated the icon is shown with a red cross through it. At this stage another printer driver may be loaded. If the printer sharer is activated again the cross will disappear and the despooler will be restarted. If another printer driver is currently active the message *Unable to claim printer port* will be displayed and the printer sharer will remain disabled.

This item opens a window displaying the contents of the print queue directory which allows the print jobs to be inspected and operated on. Once the window is open it will be continually updated as jobs are automatically spooled and despoiled. Whilst a file is waiting to be printed (either because its printer has been disabled or there is already a job going out to its printer) it may be selected in the same manner as in the filer window. Once selected a single selection may be renamed (see Prioritising and Deleting Jobs). Multiple selections may be deleted or rerouted to other logical printers.

When rerouting files to different printers bear in mind that the despooler does not alter the contents of the jobs: so that a job intended for an Epson compatible printer would not make much sense when rerouted to a PostScript printer. Files sent to Computer Concept's LaserDirect are checked for suitability whilst being printed; If the format is not correct the job will automatically be rerouted to a logical printer called 'BadLaser'.

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Assuming no banner has been set up for 'BadLaser' this will be held in the print queue directory until deleted or redirected elsewhere. However, the system manager may set 'BadLaser' to be sent to the null printer device or any other printer connected to the system.

Nexus Print Sharer Queue							
	aa00	sepson	Stn 3	2364	08:42:39	4 Jul 1991	Waiting
	aa01	sserial	Stn 3	2364	08:43:24	4 Jul 1991	Waiting
	aa03	Slaser	Stn 3	542k	19:23:34	3 Jul 1991	Waiting
	aa06	stay	Stn 3	627	08:45:34	4 Jul 1991	Waiting
	aa07	stay	Stn 3	693	08:45:41	4 Jul 1991	Waiting
	aa08	snull	Stn 3	4k	08:46:00	4 Jul 1991	Waiting

Inside the print queue window, the information is

<Printer Icon><Job Name><Banner><Station><Time><State>

The Printer Icon shows the physical printer that the job is destined for or a hand icon for jobs held.

The Job Name is the directory within the print queue holding the job information.

The Banner is the name of the banner file that defines the logical printer which spooled the job.

The Station is the number of the station that originated the job.

The Time is the date and time that the job was started.

The State is one of the either *Waiting*, *Spooling* or *Printing*. If the state is anything other than *Waiting*, the job will be greyed-out and it will not be possible to select it.

Prioritising and Deleting Jobs

Print jobs are despoiled (physically printed out) in alphabetical order, so promoting a job to be printed out earlier or later than it would otherwise have been is achieved by simply renaming the print job to an alphabetically earlier name. Note that each time the printer server is started, it will start using job names from "aa00" again, although it will not use names for which jobs already exist. In order to ensure that jobs submitted before the printer server was shut down are despoiled first, it is necessary to rename them; for example, prefixing the job names with a '!' character will ensure that they are scanned before any new print jobs, and will preserve the old order.

Quit

The printer sharer can be closed down properly at any time by selecting the "Quit" option of the printer sharer menu. This will communicate with all the stations attached to the Nexus Server so that further attempts to print will give the error "Printer not available".

Format of Print Jobs

Print jobs are given names consisting of two letters and two digits, starting from "aa00", "aa01", "aa02", "aa03" and so on up to "zz99". These are the names of directories within the Print Queue directory, which contain all the information relevant to the jobs. A print job is created for every attempt to print out using NexusPrint, whether spooled or direct; if the output is to be spooled then the job directory is used to store the data to print, while for direct printing it is used as workspace for creating the banner texts (see below).

This print job directory contains up to four files, depending on whether it is a created for spooling or for direct printing. The first file is named "job", and contains the actual data to be printed. This is only created for a spooled job, obviously.

The next file is called "header"; this contains the name of the banner to use, the times of submitting the print job, the station number that it came from, and sundry other information used to create the banner text. This file is always present.

The remaining files are called "banner" and "endtext", and contain the header and trailer banner texts to be printed out with all keywords substituted with their correct values. These are straight text files, and are only created as the data is being despoiled or printed direct.

Getting the Best Out of the System

There are many ways in which the NexusPrint printer sharer can be tuned to give the best performance for your requirements. Apart from adjusting the printer sharer parameters as suggested in the section labelled *Setup...*, the main area in which the performance of the printer sharer can be adjusted is in the placement of the Print Queue.

Placing the Print Queue on the Nexus hard disc unit will necessarily introduce some inefficiency into the printer sharer, as the continual copying of data between the Print Queue and the printer sharer's reserved area of the disc will mean the disc heads are always moving and so the access time will be slower.

This can be eliminated entirely by holding the Print Queue on a local hard disc, or even on RamFS if small numbers of small print jobs are envisaged. When this is done, the accesses of the Print Queue and the reserved disc area will not interfere with each other, so the printer sharer as a whole will run faster and not take up so much of the Archimedes' processing power.

If the LaserDirect is being used the size of jobs may play a significant part in selecting where the print queue is held. Even small jobs destined for the LaserDirect may typically be in the order of 1Mb. This is because jobs sent to the LaserDirect are *bitmaps* (i.e. a dot occurring for every dot to appear on the page). Even though the data is compressed, with a resolution of at least 300 dots per inch this is a huge amount of information.

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Error Messages

Printer Sharer Errors

This chapter lists all error messages associated with the printing software. If an error message is not listed in here please refer to the Nexus disc sharer manual.

These errors are from the application !Sharer. When these messages are displayed on the screen they will be in an error box and accompanied with a bleep. All tasks running in the machine, including the printer sharer software, will be suspended until the OK box is clicked with the mouse.

Bad device name for banner <bannername>
(where <bannername> is the name of a banner) This is caused by the first keyword in a banner's "printer" file not being one of <PARALLEL>, <SERIAL> or <NULL>; it is often caused by specifying the spooling type before the printer type.

This error will cause the printer sharer to ignore that banner.

Bad spooling type for banner <bannername>
(where <bannername> is the name of a banner) This is caused by the second keyword in a banner's "printer" file not being one of <SPOOL>, <MIXED> or <DIRECT>.

This error will cause the printer sharer to ignore that banner.

Unable to claim printer port
This error will be generated when the menu item *Printers Active* is clicked. The normal cause of this error is a printer driver already printing on the printer server station or another application has already claimed the printer port.

Printer sharer already active on stn <n>
(where <n> is the number of the station currently running the despooler software). This means that another station is already running the printer sharer software (only one printer sharer may be run per cluster of Archimedes, at present).

It is possible that the last station running the printer sharer was not shut down properly, in this case restarting the software on the offending station then shutting it down properly will enable another station to start up. Alternately, running *!PartEdit* will reset the Nexus print buffer.

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Nexus Print Errors

The following is a complete list of the errors that NexusPrint returns, and explanations of their meanings.

NexusPrint: No response from printer sharer

This error indicates that the printer sharer has not acknowledged a transmission from the NexusPrint software. This may mean that the printer sharer software is currently not running and has not been shut down properly, or that the Archimedes running the printer sharer software is either being used from the command line or being heavily used for some other task and cannot react in time.

If this latter situation persists, then the Archimedes running the printer sharer software is clearly being overloaded, and you should use it less heavily or move the printer sharer software to another machine.

NexusPrint: Banner name too long

This error means that the banner name supplied to the printer driver is too long (i.e. the name after the nexusprint:), and cannot possibly correspond to any banner the printer sharer knows about. This is cured by giving the printer driver an acceptable banner name.

NexusPrint: Printer Sharer has been shut down

This indicates that the Printer Sharer software was shutdown whilst printing was in progress.

NexusPrint: Printer not available

This indicates that the printer sharer software is not running and has been shut down properly.

NexusPrint: Internal error (bad control word)

NexusPrint: Internal error (bad banner total)

NexusPrint: Internal error (bad banner name)

NexusPrint: Internal error (buffer overflow)

Please report occurrences of these errors to SJ Research, as they indicate that the printer sharer is misbehaving.

NexusPrint: Not authorised to use printer

This error is returned when the user has tried to start a print job while the printer sharer believes that station to already have a print job open. Restart the printer sharer when convenient.

NexusPrint: Printer sharer disc full

This error means that the printer sharer has insufficient disc space to spool your print request or the print queue directory is full. If this situation persists, then you should consider either deleting files on the disc where the print queue resides to make more space for it, or moving the print queue to a different disc or system.

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NexusPrint: Printer in use

This indicates that the user is attempting to start a print job, for example with a VDU 2 command, without having finished a previous print job on that Archimedes. This may be the result of a previous program failing to close a print job correctly with a VDU 3 command or similar.

NexusPrint: Printer not open

This is the reverse of the "Printer in use" error, indicating that the user is attempting to close a print job when there is none open. This may indicate that a program is failing to open a print job correctly, for example with a VDU 2, and not reacting appropriately.

NexusPrint: GetBytes not supported

This error indicates that the user attempted to read data from the printer, which is not possible. NexusPrint, like most other print sharers, does not support the GetBytes option of the OS_GBPB system call.

NexusPrint: Printer busy

This error is returned when the user has attempted to print a file direct, i.e. specified a "direct" banner, while the physical printer is already in use printing another job. Either wait until the printer becomes available or select a spooling printer.

NexusPrint: Banner not known

This error means that the banner or logical printer that NexusPrint has been asked to print to does not exist; usually this means that it has been mistyped in some way. Type *.Nexusprint: to find which banners are available.

Bad operation on NexusPrint:

Indicates that the user asked the NexusPrint software to perform a FileSwitch function which is not supported by printing software. For example,

*INFO NEXUSPRINT:

NexusPrint: Bad card number

Indicates that the Nexus interface card number specified does not match any card connected to the Archimedes. When printing through the printer driver the card is the field following the nexusprint#

Bad call to NexusPrint:

This error means that a command has been sent to NexusPrint which is not supported.

NexusPrint: Bad printing protocol

This is due to incompatible versions of NexusPrint and the printer sharer software. Check that the version of NexusPrint is correct (use *modules). If NexusPrint is being loaded at startup check that the version of the module is correct and that the configured startup filing system is set to Nexus.

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NexusPrint: Timed out by printer sharer

This is caused by the selected printer exceeding the printer timeout value. Some Laser printers may pause for a long time between processing pages (especially PostScript printers, which have to convert the instructions given into shapes on the paper). If the printer is still processing the data then increase the printer timeout setting under the setup menu.

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Appendix A - Programmers Reference Section

Introduction

The pages that follow describe the low level user interface to the Nexus printing system.

Nexus_ReadPSName (SWI &42B00)

Reads the currently selected printer server banner name and writes it to a buffer.

On entry

R0 = Pointer to buffer
R1 = Length of buffer

On exit

R0 preserved
R1 = Number of bytes not used.

Interrupts

Interrupt status is not altered
Fast interrupts are enabled

Processor Mode

Processor is in SVC mode

Re-entrancy

Not defined

Nexus_SetPSName (SWI &42B01)

This call sets the printer server banner name.

On entry

R0 = Pointer to new name (control terminated).

On exit

R0 preserved

Interrupts

Interrupt status is not altered
Fast interrupts are enabled

Process Mode

Processor is in SVC mode

Re-entrancy

Not defined

Nexus_ReadPSTimeouts (SWI &42B02)

This call reads the number of and delay between retries of print data.

On entry

None

On exit

R0 = Server retries (default 300 = 30 seconds)

R1 = Open/Close acknowledge retries (default 70 = 7 seconds)

R2 = Delay between retries in centiseconds (default 10 = 1/10 second)

Interrupts

Interrupt status is not altered

Fast interrupts are enabled

Processor Mode

Processor is in SVC mode

Re-entrancy

Not defined

Use

This SWI reads the number of retries that the NexusPrint software will attempt when trying to print. Fatal errors, such as the printer sharer having been shut down, will not be retried.

Nexus_SetPSTimeouts (SWI &42B03)

This call sets the number and delay between retries of print data.

On entry

R0 = Server retries

R1 = Open/close acknowledge retries

R2 = Delay in centiseconds between retries

On exit

None

Interrupts

Interrupt status is not altered

Fast interrupts are enabled

Processor Mode

Processor is in SVC mode

Re-entrancy

Not defined

Use

This SWI sets the number of retries that the NexusPrint software will attempt when trying to print. Fatal errors, such as the printer sharer having been shut down, will not be retried.

Appendix B - Printing Locally from the Printer Sharer Station

Introduction

When the printer sharer software is running it claims the use of the parallel printer, the serial printer and the LaserDirect printer. This is so that the software can, by despooling or printing direct, print to any combination of these printers.

Unfortunately, it is not possible to print through Nexus on the station that is running the printer sharer software. But by temporarily disabling the despooler part of the software a local printer driver may be used.

Disabling the despooler

Whilst the despooler is disabled stations can still spool jobs to the print queue ready for printing when the despooler is enabled again. If the despooler is disabled whilst a job is being sent to the printer the partially printed job will be restarted when the despooler is enabled.

Click the menu button over the printer icon and click on the menu item *Printers Active* so that the tick disappears and a red cross appears through the printer sharer icon.



The printer sharer software has released the printers for local printing.

Printing locally to the LaserDirect

Now a printer driver may be loaded and files may be printed to the parallel printer, serial printer or the LaserDirect printer.

When printing locally to the LaserDirect the network version of the printer driver **must not be used**, as this does not contain the relocatable module for using the LaserDirect interface card.

Note that when printing through the network to a Canon mechanism only 300x300dpi is allowed. The current resolution can be checked by clicking on the printer driver.

When printing locally, 600dpi can be used but 300x300dpi must be selected before quitting the printer driver, otherwise the wrong relocatable module will be loaded in the machine when printing through the network starts.

